


Scientists identify minerals according to the following criteria:

- **Hardness**
- **Density**
- **Specific Gravity**
  - how its density compares with the density of water
  - The density of water is 1.0g/cm3 (1 gram per cubic centimeter of water)
- **Color**
- **Luster**
- **Streak**
- **Cleavage/Fracture**
- **Crystal Shape**.

**HARDNESS -**
Hardness is the ability of a mineral to resist being scratched. To determine a mineral's hardness, rub the mineral against another known mineral or object to see if it will become scratched.
The following chart indicates how you might test a mineral for hardness using a combination of Friedrich Moh's and field hardness scales. 1 represents the softest mineral while 10 is used for the hardest mineral. A mineral is able to scratch a mineral with a lower number and can, therefore be scratched by a mineral with a higher number.
(The links are to photographs of samples of the minerals. Place your mouse over each image link to view it in a separate window. Close the window to return to this page and continue.

**HARDNESS SCALE** (Moh's and Field Hardness Scales)

| Hardness | Item(s) That Will Scratch Mineral | Mineral |
|---|---|---|
| 1 | Fingernail | Talc |
| 2 | Fingernail | Gypsum |
| 3 | Penny | Calcite |
| 4 | Penny | Fluorite |
| 5 | Glass, Knife blade, or Nail | Apatite |
| 6 | Streak Plate | Feldspar |
| 7 | File | Quartz (massive type)<br>Quartz crystal |
| 8 | File | Topaz |
| 9 | File/Diamond | Corundum |
| 10 | | Diamond |

**DENSITY** or **SPECIFIC GRAVITY-**
A mineral's density is the amount of matter in a given space (mass/volume). Each mineral has a characteristic density (density does not vary with the size of the mineral). Specific gravity is the ratio of the density of a mineral compared to the density of water. It is a more specific way to compare the densities of minerals.

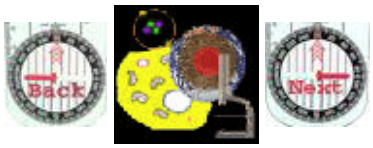
**COLOR -**
Color is easily observed, but not always a reliable characteristic for the identification of minerals. A number of different minerals have the same color.
A mineral may come in a variety of colors or may even change color due to the environment.

**LUSTER -**
A mineral's luster describes the way light is reflected from its surface. Examples of luster include - metallic, nonmetallic, brilliant, glassy, greasy, pearly, or silky.

**STREAK -**
The streak of a mineral is the color of the powder left behind when the mineral is rubbed against a hard, rough surface (e.g. streak plate). A mineral's streak color may differ from the color of the mineral itself. This characteristic is most useful for minerals that are relatively soft (have a hardness less than 7) and which have a characteristic streak color.

**CLEAVAGE/FRACTURE -**
These two characteristics describes the way a mineral breaks -
*cleavage - means to break along a smooth, definite line
*fracture - refers to rough, uneven breakage

**CRYSTAL SHAPE -**
**C**rystal shape results from the pattern formed by the atoms of a mineral when it is forming. Most minerals have a characteristic geometric shape.

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